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## Transmission Grid Solutions

### D-VAR® Solutions - Dynamic VAR Support for a More Reliable Grid

D-VAR (Dynamic VAR) reactive compensation systems provide a powerful and cost-effective source of dynamic VARs for a wide range of operational needs. They can correct voltage instability problems on transmission networks; provide dynamic steady-state voltage and power factor control and regulation on transmission and distribution networks; protect industrial facilities requiring premium power quality; and support a stable point of interconnection for distributed generation facilities and large-scale wind farms. Classified as Flexible AC Transmission System (FACTS) devices, D-VAR systems utilize an American Superconductor proprietary and advanced control and monitoring system that detects and instantaneously compensates for voltage disturbances by injecting leading or lagging reactive power, measured in VARs (volt amperes – reactive), precisely where it is needed on the grid. D-VAR systems are extremely flexible and scalable, ranging from 2 MVAR to hundreds of MVAR.



D-VAR systems are highly scalable and mobile solutions that allow utilities to install them in their power grid at locations that need the greatest amount of VAR support.

At the heart of each D-VAR system are American Superconductor's (AMSC) PowerModule™ advanced power electronic converters. PowerModule inverters are an intelligent, fully integrated four-quadrant power converter with high power density. The D-VAR is composed of rack-able IGBT power module poles capable of producing capacitive and inductive VARs. It is an air cooled, current source system that, unlike capacitor-based systems, is not subject to the square of voltage de-rating factor at lower voltages. This advantage reduces the overall level of MVARs needed for some applications. The inverters also have a short term overload capability of 2.67-3.0x of the continuous rating for up to 2 seconds, providing extra capacity for post-fault voltage recovery.

### D-VAR Solutions Address Many Needs

### TRANSMISSION GRID SOLUTION PRODUCTS

- [SuperVAR® Dynamic Synchronous Condensers](#)
- [D-SMES](#)
- [D-VAR®](#)
- [DVC™ Dynamic VAR Compensators](#)



### APPLICATIONS FOR TRANSMISSION GRID SOLUTIONS

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### CONTACT US

For more information regarding our transmission grid solutions, please contact us at: [pesinfo@amsuper.com](mailto:pesinfo@amsuper.com).

AMSC's D-VAR system was designed with flexibility in mind to address the many voltage and VAR related problems seen on the transmission grid. More AMSC D-VAR systems have been installed throughout the world than any other inverter-based (STATCOM) reactive compensation device.

Applications to date include:

- Localized Voltage Collapse Problems
- Single Point, Large Block, Transmission Connected Solutions
- Increasing Power Transfer Through Stability Limited Systems
- Reducing and Retiring RMR Generation for Voltage Support
- Wind Farm Voltage Regulation/ Low Voltage Ride Through
- Voltage Regulation on Radial Lines, and in Weak Grids
- Mitigating Industrial Voltage Transients

#### **Benefits and Advantages of D-VAR Systems**

AMSC's D-VAR systems enjoy unparalleled success in the field for many reasons. Strong and continuing customer relationships, along with proven, reliable technology, have made AMSC an industry leader, providing cost effective solutions that will work when it counts the most. When deciding on what solutions are appropriate, consider some of the benefits and advantages of D-VAR reactive compensation systems:

- High density, advanced power converters
- Low cost, easily permitted solution
- Can be deployed as a single, large block solution or distributed around an area
- World leader in Statcom installations and experience
- Minimal footprint and easy to install, leading to lower turn-key costs
- Overload capability helps maximize performance
- Minimal preventative maintenance required
- Completely air-cooled
- Fault tolerant and robust design
- Modular, relocatable and easily expandable to meet future requirements
- High field availability

#### **Let our System Planning Engineers Help You**

AMSC's transmission planning team is highly experienced, and works closely with customers to develop optimized, cost effective solutions to improve their system reliability. Former utility network planners themselves, they understand your specific needs and your network's operating behavior. They model its characteristics in accurate detail to determine the system response and offer customized solutions to meet your particular requirements. Some of the services provided include:

- Load flow studies
- Dynamic stability analysis
- Transfer capability studies
- Power quality and reliability studies
- Harmonic analysis
- System impact studies

AMSC's team of network planners uses industry standard software. They will work with you to find a solution in any modeling software that you may use. Some of the software utilized by our team includes:

- PSS/E
- PSLF

- PSCAD
- PowerWorld

At AMSC we won't just sell you a product, but rather a complete and integrated solution. All of our systems include detailed application engineering analysis and associated simulations validating the performance of our equipment on your grid. This enables us to insure our recommended solution is accurate and efficient and catered specifically to your needs.

[Click here](#) for more information on D-VAR reactive compensation systems, or to request a transmission planning study.